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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/611,859	07/03/2003	Lawrence B. Wolff	Wolff	3840

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EXAMINER	
GORADIA, SHEFALI DINESH	
ART UNIT	**PAPER NUMBER**
2624	

MAIL DATE	DELIVERY MODE
10/29/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/611,859	WOLFF ET AL.	
	Examiner	Art Unit	
	Shefali D. Goradia (Patel)	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 August 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8 and 10-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8,10-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The amendment was received on August 21, 2007.

2. Claim 9 has been cancelled.

3. Claim objections as well as 35 USC 112 second paragraph rejections from previous office action have overcome and have been withdrawn.

Response to Arguments

4. Applicant's arguments filed on August 21, 2007 under Remarks on page 5-7 have been fully considered but they are not persuasive.

Applicants argue on page 6 stating

"Medical imaging, such as x-ray machines or CT scans as cited do not in anyway sense in the reflective domain. In fact, tile Prokoski patent never even cites the term "reflective" anywhere in the document Since radiation in the reflective domain (e.g., visible, near-JR) penetrates only superficially into the human body, there is no way standard medical images can be usefully generated from the reflective domain. Furthermore, the purpose as cited above in Prokoski has to do with generating medical images by annotating them with a minutiae overlay. There is no mention about using the process for face recognition which is the purpose of the claimed subject invention. Prokoski discloses a process in which thermal IR generated minutiae is employed as an overlaid image on a medical image, which is not the same as fusing or combining thermal (emissive) imagery with reflective domain imager3: for the purpose of face recognition as set forth in claims 1 and 10 of the subject application."

The examiner disagrees.

"standard medical images" can be usefully generated from the reflective domain. (for example, please see paragraph 34 of publication 2006/0133571 – it is here that explains that the visible light is directed then reflected from the layer in order to obtain the reflective image). Prokoski discloses taking a medical image of a portion of the body via a medical imaging device (such as an x-ray machine). This is done same as the publication mentioned here. So it can be generated. The face recognition is disclosed in Prokoski. The overall object is to for annotation of medical imagery to facilitate patient recognition (see abstract) and the face of the patient is the object in Prokoski's invention. Even if this was not the case (as claimed by the applicant in the arguments), the present invention (claim 1 for example) does not mention

face recognition anywhere but in it's preamble. Since preamble and the body of the claim do not refer to the same feature, feature in the preamble has given no pattentable weight.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-8 and 10-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Prokoski (US 6,173,068) in view of Prager et al. (US 5,471,240) (hereinafter, "Prager").

With regard to **claim 1** Prokoski discloses a method for performing face recognition, comprising: producing a first video image input produced from a scene sensed in the reflective domain (medical image device 122 in Figure 11, col. 20 lines 1-3); producing a second video image input from said scene sensed in the thermal infrared domain (Thermal Imaging device 102 in Figure 11, col. 19 line 39); creating a representation template for a face from a fused combination of the first video image obtained from the reflective domain and the corrected thermal infrared video image formed (by applying NUC to the second video image obtained from) the thermal infrared domain (overlaid image IO in Figure 11, col. 19 lines 40-50 where the two images are overlaid and hence combined). Prokoski does not expressly disclose applying non-uniformity correction (NUC) to the second video image, thereby forming a corrected thermal infrared video image. Prager discloses NUC at method 40 in Figure 3, at col. 2 lines 54-66 and col. 4 lines 21 to 65. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the teaching of Prager with Prokoski. The motivation for doing so is to correct for the noise in an image (one way that nonuniformities are described) and to eliminate image defects in an imaging sensor or video system, such as a scanning infrared sensor as suggested by Prager at col. 1

lines 59-64. Therefore, it would have been obvious to combine Prager with Prokoski to obtain the invention as specified in claim 1.

With regard to **claim 2** Prokoski discloses utilizing said face representation template for comparison and matching for face recognition system applications including access control (col. 9 lines 43-48 and col. 10 line 44), rank ordered identification (col. 18 lines 51-60) and verification (col. 18 lines 50-51, col. 20 lines 51-54 for automated teller machine col. 15 lines 9-12).

With regard to **claim 3** Prokoski discloses the face representation template is a single or combination of templates of fused reflective domain and thermal infrared domain imagery (the overlay of the images seen in Figure 11 and its respective portions in the specification as described in claim 1).

With regard to **claim 4** Prokoski discloses automatically detecting faces in a scene to extract image regions in the reflective domain and thermal infrared domain from which to initiate creation of a face representation template (col. 19 lines 58-62 and col. 20 lines 36-37).

With regard to **claim 5** Prokoski discloses geometrically normalizing face image regions in the reflective domain and thermal infrared domain (col. 18 lines 18-33).

With regard to **claim 6** Prokoski discloses assigning a set of sub-windows for geometrically normalized face image regions in the reflective domain and the thermal infrared domain (assigning sub-windows as classification depending on the geometric values at col. 17 line 53 to col. 18 lines 1-33 and also illustrated in Figures 4 and 6).

With regard to **claim 7** Prokoski discloses forming face representation templates from each sub-window (forming an image, col. 17 line 63 to col. 18 lines 1-4).

With regard to **claim 8** Prokoski discloses combining face representation templates form each sub-window (as illustrated in Figures 4-6 and described at col. 17 and 18, the templates are combined to form a face representation).

With regard to **claim 10** Prokoski discloses an apparatus consisting of: at least one sensor configuration for simultaneously acquiring a reflective spectrum image an d a thermal infrared spectrum image and producing corresponding reflective spectrum and thermal infrared image signals (sensors 102 and 122 in figure 11); and an interface card connected to said at least one sensor configuration to receive said reflective spectrum and thermal infrared spectrum signals (image processing unit 108 and 118 in Figure 11 and also broadly illustrated in Figure 1 at element 110) and to send said signals to a memory within a computer system (computer 112 in Figure 1 col. 9 lines 20-22; element 114 in Figure 11) and wherein said computer system includes software for processing said input reflective spectrum and thermal infrared signals to create and store a face representation template (the computer system is assumed to be capable of processing the signals since it is shown by Prokoski and described here within).

With regard to **claim 11** Prokoski discloses computer includes software using said input reflective spectrum/thermal infrared spectrum signals to produce face representation templates (produce an image from the templates as seen in Figures 4 and 6 and formed at col. 17 line 63 to col. 18 lines 1-4).

With regard to **claim 12** Prokoski discloses computer includes software using input reflective spectrum/thermal infrared spectrum imagery to detect faces in a scene (col. 9 lines 23-27).

With regard to **claim 13** Prokoski discloses computer includes software which is able to compare and match face representation templates of unknown individuals, with those of known individuals (col. 9 lines 34-42).

With regard to **claim 14** Prokoski discloses reflective spectrum image and thermal infrared spectrum image are spatially co-registered (col. 19 lines 54-62, col. 21 lines 38-59 and col. 26 lines 58-66).

7. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Prokoski (US 6,173,068) in view of Prager et al. (US 5,471,240) (hereinafter, "Prager") as applied to claims 1-14 above, and further in view of Waxman et al. (US 5,555,324) (hereinafter, "Waxman").

With regard to **claim 15** Prokoski (modified by Prager) discloses the apparatus of claim 14 and reflective domain is the visible spectrum and the sub-spectrum as disclosed above and the arguments are not repeated herein, but are incorporated by reference. Neither Prokoski nor Prager expressly disclose the thermal domain is the LWIR spectrum. Waxman discloses LWIR at 112 in Figure 1 and col. 6 lines 47-48, col. 10 lines 44-46. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the teaching of Waxman with Prokoski and Prager. The motivation for doing so is to distinguish between the two different objects (whether it be a foreground/background or the road from the forest canopy as suggested by Waxman at col. 1 lines 31-51). Therefore, it would have been obvious to combine Waxman with Prokoski and Prager to obtain the invention as specified in claim 15.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shefali D. Goradia (Patel) whose telephone number is 571-272-7396. The examiner can normally be reached on M-F 8:00am - 5:00pm (First Friday Off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Werner can be reached on (571) 272-7401. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Shefali D Goradia (Patel)
Examiner
Art Unit 2624

sdg

BRIAN WERNER
SUPERVISORY PATENT EXAMINER